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ABSTRACT

The reliability and validity of teacher ratings, the relationship between teacher ratings and principal self-reports of instructional leadership, and the degree to which they are influenced by demographic factors are examined in this study. Methodology involved completion of the Instructional Leadership Inventory, a self-report measure, by 81 principals and completion of the Instructional Climate Inventory by 1,700 teachers representing a cross section of suburban schools within the Chicago metropolitan area. Demographic variables were also analyzed. Results show substantial agreement between principal and teacher ratings of instructional leadership; however, factor analysis suggests that teacher ratings are influenced by their perceptions of school culture. Conclusions are that teacher ratings of instructional leadership have questionable validity in identifying specific principal behaviors that contribute to school effectiveness and that principal behaviors indirectly affect student outcomes. Nineteen tables are included. (LMI)

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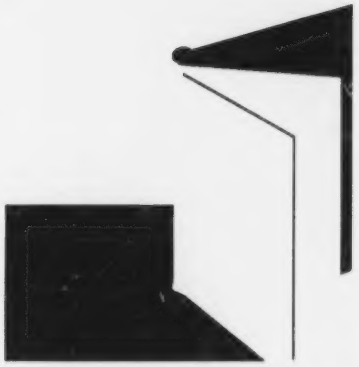

Reliability, Validity, Scope and Demographic Correlates of Teacher Ratings of Instructional Leadership and School Instructional Climate

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The National Center for School Leadership

Project Report

University of Illinois at Urbana-Champaign

University High Laboratory School

In collaboration with

The University of Michigan

MetriTech, Inc.

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Reliability, Validity, Scope and Demographic Correlates of Teacher Ratings of Instructional Leadership and School Instructional Climate

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Abstract

Efforts to define and assess instructional leadership have received increasing attention in recent years. Many studies have relied extensively on teachers' ratings as the primary source to evidence regarding instructional leadership. However, relatively little is known about the reliability or validity of the data such ratings provide. Because they are made by an outsider, a presumption is made that they are somehow objective and accurate. But this remains to be proven. The present study examines the reliability and validity of teacher ratings, the relationship between teacher ratings and principal self-reports of instructional leadership, and the degree to which they are influenced by various demographic factors.

Reliability, Validity, Scope, and Demographic Correlates of Teacher Ratings of Instructional Leadership and School Instructional Climate

The past several years have witnessed a tremendous resurgence of concern regarding the effectiveness of schools and a renewed appreciation of the role of the principal as instructional leader (Manasse, 1984). Recent studies invariably attribute a significant portion of the school's success to the principal's leadership (Mackenzie, 1983). As a consequence, efforts to define and assess instructional leadership have received increasing attention. Many of these studies have relied extensively on teachers' ratings as the primary source of evidence regarding instructional leadership. However, relatively little is known about the reliability or validity of the data such ratings provide. Because they are made by an outsider, a presumption is made that they are somehow objective and accurate. Bur this remains to be proven. The present study examines the reliability and validity of teacher ratings, the relationship between teacher ratings and

principal self-reports of instructional leadership, and the degree to which they are influenced by various demographic factors.

Early attempts to understand how principals effect the instructional process first focused on various structural characteristics of the school setting and later on personal characteristics of the principal. More recently, research has increasingly focused on observable practices of principals that appear to be related to measurable gains in student achievement.

Much of this researcher relies on field observations or teacher ratings as the basic source of information regarding what makes some principals more effective than others. Although principal self-reports and supervisory (i.e., superintendent) ratings have been used to some extent, it would appear that teacher ratings of instructional leadership have become the method of choice in the study of instructional leadership. On the one hand, they appear to correlate with school productivity (Keeler & Andrews, 1973) and student achievement (Eherts & Stone, 1988). Teacher

ratings have also had the desirable quality of allowing researchers to avoid the presumed bias of self-report.

With regard to the observation that teacher ratings of instructional leadership correlate with various student outcomes such as achievement scores (e.g., Eherts & Stone, 1988), it seems clear that teacher ratings represent a valid diagnostic appraisal of the school's level of functioning. However, teacher ratings have been used not only to assess overall school effectiveness but also to evaluate principal instructional leadership behaviors (e.g., Hallinger & Murphy, 1985; Yukl, 1981). Such an extension obviously assumes that when teachers rate a principal's instructional leadership behaviors, they are evaluating specific behaviors and not general perceptions of the school's climate. In other words, such an approach leads one to expect that teacher ratings can be used not only to diagnose school effectiveness, but that teacher ratings are also prescriptive in the sense that they can be used to identify specific areas of strength or weakness in the principal's instructional leadership.

How precisely are teachers able to distinguish leadership from its impact on the climate of the school? How reliable are those perceptions when they are aggregated across different teachers within a school? How well do teachers agree with their principals in their ratings? These are the kinds of intriguing questions that led us to conduct a series of analyses that are shortly to be described.

Method

Sample

Participants included 81 principals and 1700 teachers representing a cross section of suburban schools within the Chicago metropolitan area. Fifty percent of the principals were female and the remaining fifty percent were male. Forty percent of the principals had 1-5 years of experience in the principalship, another 40% had 6-15 years of experience, and the remaining 20% had more than 15 years of experience. The breakdown by school level was as follows: elementary--74%; middle school/junior high--21%; high school--5%. Twenty percent of the

schools had less than 300 students, 20% had 300-400 students, and 60% of the schools represented had over 500 students.

Demographic characteristics of teachers are reported in Table 1. As the table shows, about 60% were elementary teachers, 30% were middle school/junior high teachers, and 10% taught at the high school level. Roughly one in five was male. With respect to age, the largest single group was in the 40-49 year range. Only about 16% of the entire sample were 50 years of age or older. As Table 1 shows, the sample was predominantly white. Minority teachers represented only about %5 of the total group. More than half has been teaching for 13 years or more and more than half had earned degrees beyond the bachelor's level.

A variety of approaches were used to recruit schools for this study. Three Illinois Educational Service Centers (ESCs) provided assistance and coordination. At two locations, the ESC director personally contacted superintendents about the study and requested their help in the dissemination of information. Principals were informed of the study and

given a name to contact for further information. At the third location, the research team contacted principals directly by phone.

Instruments

Instructional Leadership Inventory. Principals completed the Instructional Leadership Inventory (ILI:Maehr & Ames, 1988), a self-report measure designed to assess five broad dimensions of instructional leadership: Defines Mission, Manages Curriculum, Supervises Teaching, Monitors Student Progress, and Promotes Instructional Climate. These dimensions were identified in previous research. Principals indicate how frequently they perform each of 48 instructional leadership behaviors on a five point Likert scale. The response alternatives include "Almost Never," "Seldom," "Sometimes," "Frequently," and "Almost Always." Table 2 provides descriptions of the five scales for which reliabilities range between .74 and .85 (median = .80). Krug (1989) summarizes a series of studies that support the validity of the ILI as a measure of instructional leadership. These studies include correlations with other self-report measures of instructional leadership,

correlations with superintendent ratings of instructional leadership, and correlations with relevant external criteria.

Instructional Climate Inventory (Form T).

Teachers at these schools were asked to complete the teacher' form of the Instructional Climate Inventory (ICI-T:Maehr, Braskamp, & Ames, 1988). The ICI-T contains 48 items that are parallel to those in the principal's form. The only difference between these two sets of items is the prompt. Teachers are asked "To what extent do administrators in this school..." and provided with the same five response options.

The ICI-T also includes 60 items designed to assess the school's climate. These items were adapted from a more general measure of organizational culture developed by Braskamp and Maehr (1985). These items yield scores for seven dimensions: Job Commitment, Job Satisfaction, Strength of Climate, Accomplishment, Recognition, Power, and Affiliation. The last four scales measure the degree to which teachers perceive the school climate as one that values and emphasizes each of these characteristics. Table 3 provides descriptions of the

12 scales for which reliabilities (scale internal consistency coefficients) range between .51 and .91 (median = .85).

Procedure

The data collection reported here was conducted as part of a larger study designed to examine principal instructional leadership and the context in which it is exercised. Throughout the course of a normal work week, we paged principals at random times and asked them to record their behaviors, thoughts, and mood at the time (for a complete description of this study, see Krug, Scott, & Ahadi, 1989). At the end of the week principals were asked to complete the ILI. Principals were asked to distribute the teacher rating forms at the beginning of their week of participation so that they could be completed and returned by the end of the week. Participants were given guarantees that all results would remain confidential in order to assure honest and broad participation.

A total of 1700 teachers provided ratings in the 81 schools, ranging from one school with a single respondent to another with 66 respondents. On average,

21 teachers responded from each school. Two schools that had five teacher ratings or less were eliminated from subsequent analyses because we did not feel that such a low participation rate provided an adequate representation of a school's faculty.

As is often done in studies of this type, teacher ratings were aggregated to form a single score on each scale for each school. In that case reliability values reported at the scale level no longer correctly reflect the reliability of the aggregated score, although researchers often operate as if they did. The reason for this is that internal consistency coefficients assess the consistency of a score that would have high internal consistency but little consistency across people as, for example, an IQ score within an unselected adult sample.

For this reason, we conducted a series of analyses to assess the reliabilities of scores aggregated across teachers within schools. Using the generalizability approach suggested by Cronbach, Rajaratnam, & Gleser (1963) we conducted a series of analyses of variance on each score across teachers and schools to obtain the

basic variance estimates from which intraclass correlations (or generalizability) coefficients could be calculated. For these analyses we selected only schools for which 15 or more teacher ratings were available. In schools where more than 15 teacher ratings were available, we randomly selected 15. The result was a 55 (schools with 15 or more ratings) x 15 (teachers) design.

Next, we correlated the aggregated teacher ratings on the ICI-T with principal's scores on the ILI. Because the structure of the item domains may not be precisely isomorphic for principals and teachers, a series of multiple regressions was also performed. In each analysis the principal, self-report instructional leadership scales served as the dependent variable and teacher ratings served as independent variables.

Finally, we conducted a factor analysis of the teacher ratings. Correlations among the aggregated teacher ratings were first calculated. It should be noted that the resulting correlations reflect between-schools variation, not within schools variation. The method of principal axes factoring, iterating to

communalities, was used. Two factors had eigenvalues greater than one. These factors were then rotated to oblique simple structure as defined by the Oblimin criterion.

Results

Analysis of Demographic Variables

Tables 4 through 15 provide a breakdown of the teacher ratings in terms of six demographic variables: school type (elementary, junior/middle, high), gender, age, ethnicity, teaching experience, and highest earned degree. Ratings are reported as T-scores[1]. These are standardized scores that have a mean of 50 and a standard deviation of 10 in the normative population. Each table is constructed in the same way. Column 1 presents the score average by variable category. Column 2 presents the corresponding standard deviation. Column 3 presents the number of cases on which the mean and standard deviation based. Because of missing data, the number of observations varies. Column 4 presents the F-value resulting from a one-way analysis of variance (ANOVA) for each demographic variable. Column 5

presents the associated significance (alpha) level of the F. As Table 4 shows, elementary teachers score higher on Defines Mission than junior high or middle school teachers who, in turn, score higher than high school teachers. The differences among means are highly significant ($F = 17.50$, $p < .0000$).

Generalizability Analyses

Results of the generalizability studies are shown in Table 16. Since the reliability (or generalizability) of aggregated scores is influenced by the number of observations on which they are based, each column of the table shows coefficients for a different number of teachers. Just as a high test-retest coefficient indicates that scores remain stable from time 1 to time 2, a high generalizability coefficient means that scores across teachers do not vary much. More precisely, coefficients reported in Table 16 are intraclass correlations that can be interpreted as average correlations between a specific number of aggregated teacher ratings. For example, when the Defines Mission scores of 10 teachers are averaged, the reliability of the resulting aggregate score is .76.

That is, the expected correlation between the mean score of two sets of 10 teachers from a school is .76. When the Defines Mission scores of 50 teachers are averaged, the reliability of the resulting aggregate score is .94.

Intercorrelations of Teacher Ratings and Principal Self-Reports

Table 17 presents correlations between teacher ratings and principal self-ratings of instructional leadership. As this table shows, the zero-order correlations between the two sets of ratings are generally moderate. The last row of the table shows results from the multiple regressions analyses. Overall, the two most predictable of the principal self-reports are the Defines Mission and Manages Curriculum scales. Furthermore, when the analysis was restricted to elementary schools (n = 58) where principals and teachers often have more direct contact, the level of predictability increased significantly. The corresponding multiple Rs were as follows: Defines Mission-.58, Manages Curriculum-.61, Supervises Teaching-.35, Monitors Student Progress-.41, and Promotes Instructional Climate-.38.

Factor Analyses of Teacher Ratings

Table 18 presents the intercorrelations among the teachers ratings of school instructional leadership and climate. With the exception of the Power scale, all of the intercorrelations are quite high.

The factor pattern and factor structure matrices are presented in Table 19. The patterns show a fairly clear distinction between the climate scales (Factor 1) and the instructional leadership scales (Factor 2). However, the correlation between the two factors is very high (.82), which suggests that the differences are of more theoretical than practical significance. In fact, the first principal axis factor alone accounts for 73% of the variance in the teacher ratings.

Discussion

Demographic Variables

As Tables 4 through 15 show, teacher ratings of instructional leadership and school instructional climate appear to be influenced by a variety of factors.

In general, type of school (elementary, middle, high) appears to be the most important factor. This is

true even for the seven climate scales which were scored on the basis of school level norms. Elementary school teachers rate the extent to which school leaders Monitor Student Progress higher than middle school/junior high teachers and more than half a standard deviation higher than high school teachers. The pattern of differences is approximately the same for the Accomplishment scale despite the use of separate norms. One conclusion to draw is that future norms will need to incorporate the greater range of differences noticeable in this large sample of teachers.

In terms of gender, women score approximately one third of a standard deviation higher on the Accomplishment scale. Other large differences are found on the Commitment and Satisfaction scales, where women obtain higher scores, and the Power scale, where men score about two standard score points higher.

Neither age nor ethnic status appear to impact much on ICI-T ratings. However, because there was relatively little ethnic diversity in the present sample, it would be premature to conclude that ethnicity is not an important factor. There is a suggestion in the data

that Black teachers tend to rate principals higher on Manages Curriculum than white teachers.

As might be expected, teachers with the least experience produce the highest ratings on Supervises Teaching. As a group they score highest on each of the instructional leadership scales. In general, the ratings on each of these scales declines in a linear fashion with greater experience.

In terms of educational level, the relationships to each of the scales, except Power, are statistically significant but moderate. In terms of the Power scale, teachers who have earned a doctoral degree rate the school climate as much more competitive than other. However, the difference does not appear to be significant.

Generalizability Analyses

As Charters and Pitner (1986) have noted, adequacy of a rating scale is partly dependent on evidence that raters agree. Their analysis of Yukl's (1981) Management Behavior Survey found a median interrater reliability of .68 across 23 scales, based on an average of approximately 10 raters per scale. For samples of

the same size, comparable values are somewhat higher across all ICI-T scales (median = .71) and still higher for the instructional leadership scales along (median = .73).

The lowest coefficients are found for the Power scale. A minimum of 35 teachers, more than the total faculty of most schools, would be required to obtain a reliability of .80. Disagreements among raters on the Power scale may be partly attributed to the brevity of the scale (5 items) and partly to variations in individual interpretations of competition, which appears in three of the items. That is, differences in ratings across teachers within a school may partly reflect personal values.

Perhaps the somewhat lower reliabilities for the Satisfaction and Commitment reflects the personal nature of the items. For example, these scales include such items as "I feel I get sufficient pay for the work I do" which may be more variable across individuals than an item like "This school stresses excellence" (Accomplishment), which may produce more stable responses within a school.

A review of these results leads us to agree with Charters and Pitner (1986). The error inherent in such aggregated scores suggests that if ratings are to be used, they should be based on as broad a sample of teach rs as possible. Ratings based on only a few teachers are likely to produce very unstable results.

Interrelationships of Teacher Ratings and Principal Self-Reports

There is substantial agreement between principal and teacher ratings of instructional leadership even though the zero-order correlations themselves are only moderate. On average, about 15% of the variance in principal self-reports of instructional leadership can be explained by teacher ratings. This agreement is even more pronounced in elementary schools where teachers are likely to find more frequent opportunities for interacting with the principal.

This level of agreement between ratings and self-reports should not come as a surprise. Careful studies have repeatedly demonstrated the structural congruence of the two media of observation (see, for example, Cattell, Pierson, & Finkbeiner, 1976).

Nevertheless, a belief persists, however unfounded, that ratings produce more objective or more valid data than self-report. For example, Hallinger states the principal self-reports of instructional leadership "may not provide a valid picture of principal instructional leadership" and that "only teacher scores have demonstrated validity and reliability" (1984, p. 2). In fact, both media should converge to the same conclusions when psychometrically adequate instruments are used.

That the two media converge does not suggest that one approach can or should serve as a substitute for the other. Each is susceptible to distortion of one kind or another and each offers a somewhat different, but valid, perspective. Ratings offer an important "reality check" on self-reports. However, as Scott, Ahadi, and Krug (1990) have noted elsewhere, observers record only public events, not private events. A significant loss of information may occur when we fail to consider the link between overt leadership behavior and how the leader perceives or interprets that behavior in the context in which he or she is operating. A comprehensive approach to the evaluation of

instructional leadership should ideally rely on both kinds of measures.

Dimensionality of Teacher Ratings

While it is factorially possible to differentiate teacher ratings of instructional leadership and school culture, our results suggest that the two are intimately linked. It is unclear from these data, however, whether teachers rate the school's culture as being more positive when they perceive a sense of strong instructional leadership or whether their sense of satisfaction with school's culture causes them to infer the existence of strong instructional leadership.

These findings clearly have implications concerning the "validity" of teacher ratings of instructional leadership. Although we have found substantial agreement between teacher and principal ratings of instructional leadership as evidenced by the regressions of principal self-reported ratings on teacher ratings, the results of the factor analysis suggest that teacher ratings are confounded with their perceptions of school culture.

To the extent that what much of the effective schools research has demonstrated is that teacher ratings of instructional leadership are predictive of student achievement and other outcomes (i.e., absenteeism, student motivation, etc.) teacher ratings of instructional leadership clearly appear to be diagnostic of effective school functioning. However, given the extremely high correlation between teacher ratings of instructional leadership and school culture, teacher ratings of instructional leadership cannot be said to have high validity with concern to identifying specific attributes of principal behavior that contribute to school effectiveness.

It is interesting also to consider how principal self-reports can be utilized to understand the processes underlying instructional leadership even though they are not directly predictive of academic outcomes. To suggest that principal self-reports should correlate highly with academic outcomes requires us to assume that principal behavior has a direct impact of student behavior. Considering that most students have little direct contact with their principal, this is an

improbable assumption. The effects of principal behavior on student outcomes must primarily be indirect (Krug, 1989). The instructional leader impacts on students by defining and creating a culture, a set of values or norms, that places instruction as the highest priority. To the extent that the principal is able to define and communicate a dedication and commitment to instruction, the faculty, staff, and community will transmit this cultural norm to the students.

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Endnotes

[1]Separate norms are provided for elementary, middle school/junior high, and high school teachers on the climate scales of the ICI-T and were used in the scoring reported here.

Table 1
Demographic Characteristics of Teachers Participating in the Study

Variable/Category	Frequency	Percent	Valid Percent	Cum Percent
SCHOOL LEVEL				
Elementary	1025	60.3	61.0	61.0
Junior or Middle	498	29.3	29.7	90.7
Senior High	156	9.2	9.3	100.0
Missing	21	1.2		
GENDER				
Male	315	18.5	20.5	20.5
Female	1224	72.0	79.5	100.0
Missing	161	9.5		
AGE				
Younger than 30	212	12.5	13.9	13.9
30 to 39 years old	421	24.8	27.5	41.4
40 to 49 years old	650	38.2	42.5	83.9
50 to 59 years old	211	12.4	13.8	97.6
Older than 59	36	2.1	2.4	100.0
Missing	170	10.0		
ETHNIC BACKGROUND				
White	1456	85.6	95.4	95.4
Black	34	2.0	2.2	97.6
Hispanic	16	.9	1.0	98.7
Asian	10	.6	.7	99.3
Other	10	.6	.7	100.0
Missing	174	10.2		
YEARS OF TEACHING EXPERIENCE				
0-3 years' experience	138	8.1	9.1	9.1
4-6 years' experience	159	9.4	10.5	19.6
7-9 years' experience	151	8.9	9.9	29.5
10-12 years' experience	183	10.8	12.1	41.6
12+ years' experience	887	52.2	58.4	100.0
Missing	182	10.7		
HIGHEST DEGREE EARNED				
Bachelor's Degree	660	38.8	44.1	44.1
Master's Degree	735	43.2	49.1	93.1
Educational Specialist	92	5.4	6.1	99.3
Doctoral Degree	11	.6	.7	100.0
Missing	202	11.9		

Table 2
Brief Description of the Instructional Leadership Inventory Scales

DEFINES MISSION

Individuals who score high on this scale describe themselves as administrators who frequently discuss school goals, purposes, and mission with staff. They take advantage of any opportunity to stress and communicate school goals. Further, they try to make themselves visible in the school building, they recognize good teaching at formal school ceremonies, and they communicate excitement about future possibilities to staff and students.

MANAGES CURRICULUM

High-scorers describe themselves as administrators who provide information teachers need to plan their work effectively. They work to ensure a good fit between curriculum objectives and achievement testing and provide specific support for curriculum development. Their primary emphasis as administrator is with instructional rather than administrative issues. People who score high have a good knowledge of instructional methods that allow them to make valid and useful critiques of their staff's work.

SUPERVISES TEACHING

Individuals who score high describe themselves as spending time working on teaching skills with teachers, observing classes, and encouraging staff to try their best. They coach and counsel teachers in a supportive manner. They attempt to critique teachers as though they were a mentor rather than an evaluator. They encourage teachers to evaluate their own performance and set goals for their own growth.

MONITORS STUDENT PROGRESS

People who score high on this scale describe themselves as setting high standards for student achievement. They regularly review student performance data with teachers and use this information to gauge progress toward the school's goals. Individuals who score high provide teachers with easy and timely access to student assessment information and discuss item analyses with teachers to determine strengths and weaknesses within the curriculum.

PROMOTES INSTRUCTIONAL CLIMATE

Administrators who score high on this scale use a variety of techniques to create a climate that nurtures teaching and learning. They encourage teachers to try out new ideas and to compete for awards. They nominate staff members for awards, write letters of commendation for a job well done, and ask parents to praise teachers for their good work. Individuals who score high establish clear guidelines concerning the school's policies and procedures and are consistent in enforcing them.

Table 3
Brief Description of the Instructional Climate Inventory (Form T) Scales

DEFINES MISSION

High scores suggest a school climate in which administrators regularly discuss school goals, purposes, and mission with staff. Instructional leaders are viewed as frequently taking advantage of opportunities to stress and communicate school goals. They attempt to make themselves visible in the school building, they recognize good teaching at formal school ceremonies, and they communicate an excitement about future possibilities to staff and students.

MANAGES CURRICULUM

Schools with higher scores are perceived to have a climate in which administrators provide the information teachers need to plan their work effectively. Administrators work to ensure a good fit between curriculum objectives and achievement testing and provide specific support for curriculum development. The primary emphasis is with educational rather than administrative issues.

SUPERVISES TEACHING

Schools with high scores are characterized by a climate in which administrators spend time working on teaching skills with teachers, observing classes, and encouraging staff. These administrators encourage teachers to evaluate their own performance and set goals for their own growth.

MONITORS STUDENT PROGRESS

The climate of schools with high scores on this scale tends to be described by faculty and staff as one in which student progress is a top priority. Administrators in such schools review student performance data with teachers and use student assessment information to gauge progress toward the school's goals. These administrators provide teachers with easy and timely access to student assessment information and they discuss item analyses with teachers to determine strengths and weaknesses in the instructional program.

PROMOTES INSTRUCTIONAL CLIMATE

The climate of schools with higher than average scores on this scale may be described as one that tends to encourage teachers to try out new ideas. Reinforcement is high. Administrators nominate staff members for awards, write letters of commendation for a job well done, and ask parents to praise teachers for their good work. The school reinforces high expectations by establishing academic standards and incentives. Schools with high scores typically have administrators who acknowledge outstanding teacher performance to the community through newsletters, etc.

Table 3 (continued)

SATISFACTION

The Satisfaction scale includes items that correspond to major facets of job satisfaction identified in the research literature: satisfaction with work itself, with pay, with promotion, with supervision, and with co-workers. Higher scores indicate more positive attitudes towards all of these areas.

COMMITMENT

The Commitment scale measures acceptance of and loyalty to the school. It measures sense of pride and ownership in the school. High scores mean that teachers have expressed a high degree of commitment and loyalty to the school. When the score is high the climate is one in which teachers take considerable pride in working at the school and have a strong belief in its values.

STRENGTH OF CLIMATE

Strength of climate refers to the saliency of the instructional climate. In other words, it refers to how obvious or clear are the goals and purposes of the school. Faculty and staff at schools with high scores report that they are clearly aware of the school's goals and purposes. Teachers at high-scoring schools believe that they know what the school stands for.

ACCOMPLISHMENT

High scores on this scale mean that the school is perceived as emphasizing excellence and quality in what it does. These schools are described as being extremely supportive of teachers who try new ideas and are innovative in their problem solving. These schools generally try to provide a high degree of freedom and autonomy in order for teachers to be creative and innovative; teachers do not have to worry if a new idea fails. Quality education is emphasized throughout the school; there is a clear focus on excellence.

RECOGNITION

When this scale is high it means that the school climate is perceived as valuing and rewarding good efforts. Teachers feel that they are treated as adults and as winners. Productivity by teachers is very visibly rewarded. They are encouraged to work hard and are reinforced for doing so. Payoffs for doing a good job are readily available. Overall, the school's environment is viewed as a very positive one. The school not only encourages effort but also does something concrete about it in terms of a well-regarded reward system.

Table 3 (continued)

POWER

A high score on this scale means that teachers at this school rate the school's climate to be one that places considerable emphasis on competition. Teachers in these schools describe the climate as one in which they are regularly involved in competitions with co-workers. Conflict among teachers may be a frequent by-product, but teachers feel that those in power regard it as healthy and normal. A high score means that the atmosphere of the school can best be viewed as competitive. However, it may not necessarily be a hostile and destructive one if the school consciously sets this tone in the hopes of encouraging ambitious teachers to achieve to their maximum.

AFFILIATION

When this scale is high, it means that teachers consider the school climate to be one of trust and respect. A strong supportive feeling exists that is felt by most of the teachers. Sharing of information, involvement in decision making, and mutual cooperative problem solving are some activities that describe the climate from the teachers' perspective. Teachers feel that the school really cares about them. Thus, words such as caring, sharing, trusting, and cooperative describe the school's climate.

Table 4
Demographic Analysis of Teacher Ratings on ICI-T Scale: Defines Mission

	Mean	SD	Cases	F	Sig
Elementary	47.69	10.87	989	17.50	.0000
Junior or Middle	45.35	11.62	492		
Senior High	42.74	9.81	154		
Male	45.56	10.81	315	2.62	.1055
Female	46.70	11.22	1221		
Younger than 30	48.72	9.85	212	3.84	.0041
30 to 39 years old	45.67	11.09	420		
40 to 49 years old	46.00	11.41	648		
50 to 59 years old	46.87	11.24	211		
Older than 59	49.72	11.50	36		
White	46.49	10.99	1453	1.81	.1230
Black	49.70	12.93	34		
Hispanic	45.25	14.29	16		
Asian	48.60	14.04	10		
Other	39.60	8.94	10		
0-3 years' experience	50.30	9.99	138	7.46	.0000
4-6 years' experience	48.32	9.64	159		
7-9 years' experience	47.68	10.48	150		
10-12 years' experience	46.32	12.10	183		
12+ years' experience	45.50	11.20	885		
Bachelor's Degree	48.14	10.59	658	8.88	.0000
Master's Degree	45.25	11.22	735		
Educational Specialist	44.73	11.61	91		
Doctoral Degree	45.27	11.15	11		

Table 5
Demographic Analysis of Teacher Ratings on ICI-T Scale: Manages Curriculum

	Mean	SD	Cases	F	Sig
Elementary	52.56	9.80	987	15.29	.0000
Junior or Middle	50.41	10.42	491		
Senior High	48.58	8.86	154		
Male	50.91	9.32	315	1.32	.2502
Female	51.63	10.19	1222		
Younger than 30	53.13	8.62	212	4.48	.0013
30 to 39 years old	50.62	10.04	420		
40 to 49 years old	51.01	10.22	649		
50 to 59 years old	52.38	10.16	211		
Older than 59	55.52	11.15	36		
White	51.48	9.84	1454	3.00	.0176
Black	56.00	11.77	34		
Hispanic	50.81	11.50	16		
Asian	53.60	14 38	10		
Other	44.80	10.60	10		
0-3 years' experience	54.05	8.98	138	4.54	.0012
4-6 years' experience	52.85	8.68	159		
7-9 years' experience	52.55	9.29	150		
10-12 years' experience	51.17	10.36	183		
12+ years' experience	50.81	10.29	886		
Bachelor's Degree	52.97	9.38	659	9.10	.0000
Master's Degree	50.25	10.22	735		
Educational Specialist	50.60	10.72	91		
Doctoral Degree	50.36	8.61	11		

Table 6
Demographic Analysis of Teacher Ratings on ICI-T Scale: Supervises Teaching

	Mean	SD	Cases	F	Sig
Elementary	51.85	11.43	985	7.79	.0004
Junior or Middle	49.75	12.11	491		
Senior High	49.01	10.34	154		
Male	51.09	11.10	315	.06	.8048
Female	50.91	11.71	1222		
Younger than 30	53.68	10.50	212	4.58	.0011
30 to 39 years old	50.05	11.54	420		
40 to 49 years old	50.60	11.77	649		
50 to 59 years old	50.66	11.52	211		
Older than 59	54.38	13.07	36		
White	50.93	11.42	1454	2.04	.0853
Black	55.70	14.06	34		
Hispanic	49.81	11.85	16		
Asian	53.40	16.34	10		
Other	46.00	10.32	10		
0-3 years' experience	55.10	11.05	138	10.20	.0000
4-6 years' experience	53.59	9.67	159		
7-9 years' experience	52.56	11.02	150		
10-12 years' experience	51.06	11.96	183		
12+ years' experience	49.67	11.70	886		
Bachelor's Degree	52.71	11.04	659	9.60	.0000
Master's Degree	49.56	11.58	735		
Educational Specialist	49.08	12.90	91		
Doctoral Degree	51.27	10.08	11		

Table 7
Demographic Analysis of Teacher Ratings on ICI-T Scale: Monitors Student Progress

	Mean	SD	Cases	F	Sig
Elementary	50.05	10.26	986	27.71	.0000
Junior or Middle	48.12	10.46	492		
Senior High	43.68	9.24	154		
Male	48.25	10.09	315	.87	.3491
Female	48.87	10.50	1222		
Younger than 30	50.04	9.12	212	2.43	.0456
30 to 39 years old	48.26	10.44	420		
40 to 49 years old	48.43	10.52	649		
50 to 59 years old	48.83	10.57	211		
Older than 59	52.61	13.31	36		
White	48.77	10.25	1454	1.71	.1444
Black	52.26	13.79	34		
Hispanic	46.93	11.22	16		
Asian	48.40	13.37	10		
Other	43.60	9.20	10		
0-3 years' experience	51.11	9.29	138	4.40	.0015
4-6 years' experience	50.04	9.00	159		
7-9 years' experience	50.08	9.82	150		
10-12 years' experience	49.16	11.10	183		
12+ years' experience	47.96	10.58	886		
Bachelor's Degree	50.40	9.75	659	9.99	.0000
Master's Degree	47.45	10.48	735		
Educational Specialist	47.74	11.42	91		
Doctoral Degree	47.63	10.67	11		

Table 8
Demographic Analysis of Teacher Ratings on ICI-T Scale: Promotes Instructional Climate

	Mean	SD	Cases	F	Sig
Elementary	47.68	9.92	984	4.51	.0111
Junior or Middle	46.49	10.82	492		
Senior High	45.46	9.44	154		
Male	46.85	9.85	315	.43	.5090
Female	47.27	10.27	1221		
Younger than 30	48.74	9.93	212	2.44	.0447
30 to 39 years old	46.57	9.54	420		
40 to 49 years old	46.93	10.83	648		
50 to 59 years old	47.32	9.57	211		
Older than 59	50.05	10.44	36		
White	47.24	10.09	1453	1.11	.3456
Black	49.55	11.94	34		
Hispanic	44.37	10.30	16		
Asian	48.10	13.05	10		
Other	43.50	8.75	10		
0-3 years' experience	50.06	9.66	138	5.59	.0002
4-6 years' experience	48.91	9.68	159		
7-9 years' experience	47.98	9.59	150		
10-12 years' experience	47.35	10.88	183		
12+ years' experience	46.38	10.15	885		
Bachelor's Degree	48.27	9.68	658	4.56	.0034
Master's Degree	46.41	10.22	735		
Educational Specialist	45.93	11.46	91		
Doctoral Degree	45.45	12.05	11		

Table 9
Demographic Analysis of Teacher Ratings on ICI-T Scale: Satisfaction

	Mean	SD	Cases	F	Sig
Elementary	52.31	9.30	1025	9.28	.0001
Junior or Middle	50.58	10.63	498		
Senior High	49.38	10.72	156		
Male	49.96	10.56	315	11.04	.0009
Female	52.03	9.68	1224		
Younger than 30	52.39	8.98	212	5.59	.0002
30 to 39 years old	50.27	9.53	421		
40 to 49 years old	51.40	10.19	650		
50 to 59 years old	53.50	10.30	211		
Older than 59	55.36	9.26	36		
White	51.71	9.76	1456	1.89	.1094
Black	51.94	12.41	34		
Hispanic	47.12	9.08	16		
Asian	51.50	16.44	10		
Other	45.30	11.21	10		
0-3 years' experience	53.17	8.71	138	2.53	.0386
4-6 years' experience	53.31	9.47	159		
7-9 years' experience	51.47	10.00	151		
10-12 years' experience	50.80	9.81	183		
12+ years' experience	51.31	10.15	887		
Bachelor's Degree	52.45	9.29	660	3.05	.0273
Master's Degree	50.90	10.07	735		
Educational Specialist	50.89	11.66	92		
Doctoral Degree	50.63	13.50	11		

Table 10
Demographic Analysis of Teacher Ratings on ICI-T Scale: Commitment

	Mean	SD	Cases	F	Sig
Elementary	54.81	9.99	1025	24.40	.0000
Junior or Middle	50.87	14.01	498		
Senior High	50.51	12.02	156		
Male	51.17	12.29	315	11.58	.0007
Female	53.68	11.47	1224		
Younger than 30	53.27	9.93	212	3.98	.0032
30 to 39 years old	51.52	11.79	421		
40 to 49 years old	53.39	11.97	650		
50 to 59 years old	55.00	12.07	211		
Older than 59	55.94	11.48	36		
White	53.24	11.67	1456	1.43	.2187
Black	53.94	12.73	34		
Hispanic	53.06	8.78	16		
Asian	51.40	15.79	10		
Other	44.60	17.03	10		
0-3 years' experience	53.35	10.55	138	.70	.5920
4-6 years' experience	53.88	10.42	159		
7-9 years' experience	53.20	10.72	151		
10-12 years' experience	51.89	13.18	183		
12+ years' experience	53.25	12.03	887		
Bachelor's Degree	54.38	11.15	660	4.81	.0024
Master's Degree	52.04	11.87	735		
Educational Specialist	53.07	13.80	92		
Doctoral Degree	50.27	18.89	11		

Table 11
Demographic Analysis of Teacher Ratings on ICI-T Scale: Strength of Climate

	Mean	SD	Cases	F	Sig
Elementary	52.03	10.74	1025	3.06	.0470
Junior or Middle	52.30	12.21	498		
Senior High	49.83	10.13	156		
Male	50.64	11.08	315	4.42	.0355
Female	52.13	11.22	1224		
Younger than 30	51.31	10.08	212	3.81	.0043
30 to 39 years old	50.64	11.34	421		
40 to 49 years old	52.20	11.49	650		
50 to 59 years old	52.77	10.87	211		
Older than 59	57.05	11.11	36		
White	51.87	11.10	1456	2.46	.0431
Black	56.29	10.48	34		
Hispanic	48.56	10.62	16		
Asian	52.60	17.32	10		
Other	45.70	11.69	10		
0-3 years' experience	51.52	10.76	138	1.37	.2395
4-6 years' experience	53.46	9.65	159		
7-9 years' experience	51.92	9.82	151		
10-12 years' experience	50.65	11.29	183		
12+ years' experience	51.89	11.72	887		
Bachelor's Degree	52.78	11.04	660	3.58	.0134
Master's Degree	51.04	11.29	735		
Educational Specialist	52.00	11.28	92		
Doctoral Degree	46.63	14.16	11		

Table 12
Demographic Analysis of Teacher Ratings on ICI-T Scale: Accomplishment

	Mean	SD	Cases	F	Sig
Elementary	54.38	9.53	1025	23.05	.0000
Junior or Middle	52.20	13.59	498		
Senior High	48.29	11.73	156		
Male	50.82	11.88	315	16.68	.0000
Female	53.71	11.00	1224		
Younger than 30	54.22	9.13	212	.93	.4431
30 to 39 years old	52.53	11.61	421		
40 to 49 years old	53.01	11.69	650		
50 to 59 years old	53.61	10.98	211		
Older than 59	53.72	11.34	36		
White	53.27	11.15	1456	2.76	.0263
Black	56.20	10.85	34		
Hispanic	49.06	9.74	16		
Asian	50.50	15.60	10		
Other	44.70	13.67	10		
0-3 years' experience	54.99	9.60	138	4.29	.0018
4-6 years' experience	55.33	8.81	159		
7-9 years' experience	54.72	9.79	151		
10-12 years' experience	52.79	12.71	183		
12+ years' experience	52.37	11.65	887		
Bachelor's Degree	54.70	10.17	660	7.65	.0000
Master's Degree	52.02	11.73	735		
Educational Specialist	52.09	12.66	92		
Doctoral Degree	48.54	15.98	11		

Table 13
Demographic Analysis of Teacher Ratings on ICI-T Scale: Recognition

	Mean	SD	Cases	F	Sig
Elementary	52.53	9.68	1025	.67	.5090
Junior or Middle	52.88	13.04	498		
Senior High	51.73	11.22	156		
Male	51.70	11.73	315	2.52	.1122
Female	52.80	10.75	1224		
Younger than 30	54.36	9.46	212	4.69	.0009
30 to 39 years old	51.19	11.38	421		
40 to 49 years old	52.42	11.31	650		
50 to 59 years old	53.72	10.26	211		
Older than 59	56.16	9.69	36		
White	52.63	10.92	1456	2.45	.0443
Black	56.11	12.31	34		
Hispanic	48.06	8.91	16		
Asian	54.60	13.06	10		
Other	46.40	9.40	10		
0-3 years' experience	55.90	9.26	138	7.47	.0000
4-6 years' experience	55.18	9.92	159		
7-9 years' experience	53.48	9.68	151		
10-12 years' experience	51.33	12.05	183		
12+ years' experience	51.80	11.19	887		
Bachelor's Degree	53.91	10.44	660	5.85	.0006
Master's Degree	51.59	11.22	735		
Educational Specialist	51.48	11.12	92		
Doctoral Degree	49.72	13.50	11		

Table 14
Demographic Analysis of Teacher Ratings on ICI-T Scale: Power

	Mean	SD	Cases	F	Sig
Elementary	47.54	10.99	1025	12.45	.0000
Junior or Middle	50.53	11.65	498		
Senior High	49.31	10.11	156		
Male	50.37	11.94	315	10.51	.0012
Female	48.05	11.15	1224		
Younger than 30	49.14	10.28	212	.82	.5070
30 to 39 years old	48.62	10.30	421		
40 to 49 years old	48.61	12.03	650		
50 to 59 years old	47.68	12.01	211		
Older than 59	46.25	11.53	36		
White	48.32	11.23	1456	1.90	.1077
Black	49.35	13.81	34		
Hispanic	52.68	11.51	16		
Asian	56.00	13.14	10		
Other	51.10	13.30	10		
0-3 years' experience	48.90	9.90	138	.54	.6999
4-6 years' experience	47.33	10.81	159		
7-9 years' experience	48.98	9.38	151		
10-12 years' experience	48.73	11.19	183		
12+ years' experience	48.54	11.98	887		
Bachelor's Degree	48.40	10.52	660	.41	.7456
Master's Degree	48.50	11.81	735		
Educational Specialist	48.93	12.84	92		
Doctoral Degree	52.00	9.92	11		

Table 15
Demographic Analysis of Teacher Ratings on ICI-T Scale: Affiliation

	Mean	SD	Cases	F	Sig
Elementary	51.27	11.36	1025	14.59	.0000
Junior or Middle	47.61	14.85	498		
Senior High	49.70	10.59	156		
Male	48.50	12.21	315	6.18	.0130
Female	50.45	12.48	1224		
Younger than 30	52.00	10.53	212	5.31	.0003
30 to 39 years old	48.60	12.98	421		
40 to 49 years old	49.65	13.04	650		
50 to 59 years old	51.42	11.28	211		
Older than 59	55.52	10.15	36		
White	50.16	12.31	1456	2.94	.0195
Black	54.23	14.38	34		
Hispanic	45.25	12.46	16		
Asian	51.50	15.50	10		
Other	41.00	12.98	10		
0-3 years' experience	53.15	10.90	138	5.35	.0003
4-6 years' experience	52.64	10.55	159		
7-9 years' experience	50.90	11.24	151		
10-12 years' experience	48.65	13.45	183		
12+ years' experience	49.36	12.83	887		
Bachelor's Degree	51.62	11.69	660	6.47	.0002
Master's Degree	48.77	12.79	735		
Educational Specialist	49.90	13.24	92		
Doctoral Degree	46.45	13.81	11		

Table 16
Results of Generalizability Analyses of Teacher Ratings

	Number of Teacher Ratings								
SCALE	10	15	20	25	30	35	40	45	50
Leadership Scales									
Defines Mission	.76	.83	.87	.89	.91	.92	.93	.94	.94
Manages Curriculum	.64	.73	.78	.82	.84	.86	.88	.89	.90
Supervises Teaching	.70	.78	.83	.86	.88	.89	.90	.91	.92
Monitors Student Progress	.73	.80	.84	.87	.89	.90	.91	.92	.93
Promotes Instructional Climate	.78	.84	.88	.90	.91	.92	.93	.94	.95
Climate Scales									
Satisfaction	.61	.70	.76	.80	.82	.84	.86	.87	.89
Commitment	.61	.70	.76	.80	.82	.84	.86	.87	.89
Strength of Climate	.71	.79	.83	.86	.88	.90	.91	.92	.93
Accomplishment	.73	.80	.84	.87	.89	.90	.91	.92	.93
Recognition	.74	.81	.85	.88	.90	.91	.92	.93	.93
Power	.53	.63	.69	.74	.77	.80	.82	.84	.85
Affiliation	.76	.83	.87	.89	.91	.92	.93	.94	.94

Table 17
Correlations Between Teacher Ratings and Principal Self-Reports of Instructional Leadership

ICI-T Scales	ILI Scales[a] 1	2	3	4	5
Defines Mission	.35**	.25*	.17	.22	.13
Manages Curriculum	.24*	.31**	.21	.22	.08
Supervises Teaching	.21	.19	.19	.18	.11
Monitors Student Progress	.12	.11	.10	.30**	-.01
Promotes Instructional Climate	.25*	.14	.16	.17	.17
Multiple R	.46**	.43*	.28	.37	.31

[a] Based on data from 79 schools. ILI scales are identified as follows: 1—Defines Mission, 2—Manages Curriculum, 3—Supervises Teaching, 4—Monitors Student Progress, 5—Promotes Instructional Climate.

* $p < .05$
** $p < .01$

Table 18
Intercorrelations Among Teacher Rating Scales

	1	23	4	5	6	
1. Defines Mission	1.00	.88	.89	.82	.88	.71
2. Manages Curriculum	.88	1.00	.88	.83	.78	.69
3. Supervises Teaching	.89	.88	1.00	.89	.86	.69
4. Monitors Student Progress	.82	.83	.89	1.00	.78	.56
5. Promotes Instructional Climate	.88	.78	.86	.78	1.00	.74
6. Satisfaction	.71	.69	.69	.56	.74	1.00
7. Commitment	.68	.63	.64	.56	.67	.81
8. Strength of Climate	.75	.72	.71	.62	.69	.72
9. Accomplishment	.81	.76	.78	.67	.80	.85
10. Recognition	.81	.77	.83	.71	.86	.82
11. Power	-.24	-.25	-.19	-.16	-.24	-.22
12. Affiliation	.76	.73	.74	.60	.79	.80

	7	89	10	11	12	
1. Defines Mission	.68	.75	.81	.81	-.24	.76
2. Manages Curriculum	.63	.72	.76	.77	-.25	.73
3. Supervises Teaching	.64	.71	.78	.83	-.19	.74
4. Monitors Student Progress	.56	.62	.67	.71	-.16	.60
5. Promotes Instructional Climate	.67	.69	.80	.86	-.24	.79
6. Satisfaction	.81	.72	.85	.82	-.22	.80
7. Commitment	1.00	.72	.85	.72	-.26	.81
8. Strength of Climate	.72	1.00	.82	.82	-.34	.83
9. Accomplishment	.85	.82	1.00	.87	-.27	.84
10. Recognition	.72	.82	.87	1.00	-.26	.86
11. Power	-.26	-.34	-.27	-.26	1.00	-.50
12. Affiliation	.81	.83	.84	.86	-.50	1.00

Note: Based on data from 79 schools.

Table 19
Factor Pattern and Factor Structure Matrices for ICI-T Ratings

Pattern Matrix

	I	II
Defines Mission	.19	.80
Manages Curriculum	.14	.81
Supervises Teaching	.04	.94
Monitors Student Progress	-.13	1.00
Promotes Instructional Climate	.29	.68
Satisfaction	.72	.21
Commitment	.76	.13
Strength of Climate	.65	.28
Accomplishment	.69	.33
Recognition	.55	.46
Power	-.44	.10
Affiliation	.87	.13

Structure Matrix

	I	II
Defines Mission	.74	.93
Manages Curriculum	.69	.91
Supervises Teaching	.69	.97
Monitors Student Progress	.55	.91
Promotes Instructional Climate	.76	.88
Satisfaction	.86	.70
Commitment	.85	.65
Strength of Climate	.84	.72
Accomplishment	.91	.80
Recognition	.86	.83
Power	-.37	-.20
Affiliation	.96	.72